

USSN 10/738,413

EXHIBIT 4

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siRNA Target Finder

1. Paste your mRNA sequence (5' to 3'): (Please ensure that sequence contains no numbers.)

```
tattgagttcttcaaacattgtagcctctttatggctctgagaaataactaccttaaac  
ccataatcttaataacttctaaacttcttaataagagaagctctatctgacactac  
ctctcatttgcaagggtcaaatcatcattagttttgtagctattaactgggttgcttag  
gtcaggcattattactaaccctattgttaataattctaaccataagaattaaactatt  
aatgggtaatagagttttcacttaacatagcctatcccactggtggatacgagcca
```

2. End my siRNAs with:

☒ TT ☐ UU

3. G/C content maximum (optional):

50%

4. Sequence constraints to avoid:

- ☐ 4 or more A's or T's in a row (recommended for vectors with pol III promoter)
- ☐ 4 or more G's or C's in a row (recommended for chemically synthesized siRNA)

Target sequence 1: AAACATTGTAGCCTCTTTATG[Blast search](#) (in new window)

Position in gene sequence: 14

GC content: 33.3%

Sense strand siRNA: ACAUUGUAGCCUCUUAUGtt

Antisense strand siRNA: CAUAAAGAGGCUACAAUGtt

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Position in gene sequence: 44

GC content: 28.6%

Sense strand siRNA: AUAACUACCUUAAACCAUtt

Antisense strand siRNA: AUGGGUUUAAGGUAGUUAUtt

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Blast search (in new window)

Position in gene sequence: 48

GC content: 33.3%

Sense strand siRNA: CUACCUUAAACCCAUAAUCtt

Antisense strand siRNA: GAUUAUGGGUUAAGGUAGtt

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Target sequence 4: AAACCCATAATCTTTAATACT

Blast search (in new window)

Position in gene sequence: 57

GC content: 23.8%

Sense strand siRNA: ACCCAUAAUCUUUAAUACutt

Antisense strand siRNA: AGUAUUAAGAUUAUGGGUtt

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Target sequence 5: AATCTTTAATACTTCCTAAAC

Blast search (in new window)

Position in gene sequence: 65

GC content: 23.8%

Sense strand siRNA: UCUUUAUACUUCUAAACtt

Antisense strand siRNA: GUUUAGGAAGUAUUAAGAtt

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Target sequence 6: AATACTTCCTAAACTTTCTTA

Blast search (in new window)

Position in gene sequence: 72

GC content: 23.8%

Sense strand siRNA: UACUUCUAAACUUUCUAtt

Antisense strand siRNA: UAAGAAAGUUUAGGAAGUAtt

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Target sequence 7: AAACCTTCTTAATAAGAGAAG

Blast search (in new window)

Position in gene sequence: 82

GC content: 23.8%

Sense strand siRNA: ACUUUCUAAUAAGAGAAGtt

Antisense strand siRNA: CUUCUCUUAUAAGAAAGUtt

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Target sequence 8: AATAAGAGAAGCTCTATTCCT

Blast search (in new window)

Position in gene sequence: 92

GC content: 33.3%

Sense strand siRNA: UAAGAGAAGCUCUAUUCUtt

Antisense strand siRNA: AGGAAUAGAGCUUCUCUAtt

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Position in gene sequence: 95

GC content: 42.9%

Sense strand siRNA: GAGAAGCUCUAUCCUGACtt

Antisense strand siRNA: GUCAGGAUAGAGCUUCUCtt

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Position in gene sequence: 100

GC content: 42.9%

Sense strand siRNA: GCUCUAUCCUGACACUACTt

Antisense strand siRNA: GUAGUGUCAGGAUAGAGCtt

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Position in gene sequence: 132

GC content: 28.6%

Sense strand siRNA: GGUCAAUJCAUCAUUAGUtt

Antisense strand siRNA: AACUAAUGAUGAUUUGACtt

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Position in gene sequence: 138

GC content: 23.8%

Sense strand siRNA: AUCAUCAUUGUUUUGUAGtt

Antisense strand siRNA: CUACAAAACUAAUGAUGAUtt

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Position in gene sequence: 165

GC content: 47.6%

Sense strand siRNA: CUGGGUUUGCUUAGGUCAGtt

Antisense strand siRNA: CUGACCUAAGCAAACCCAGtt

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Target sequence 14: AACCTTATTGTTAATATTCTA

Blast search (in new window)

Position in gene sequence: 200

GC content: 19%

Sense strand siRNA: CCUUAUUGUUAUUAUUCUatt

Antisense strand siRNA: UAGAAUAUUAACAAUAAGGtt

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Target sequence 15: AATATTCTAACCATAAGAATT

Blast search (in new window)

Position in gene sequence: 212

GC content: 19%

Sense strand siRNA: UAUUCUAACCAUAAGAAUutt

Antisense strand siRNA: AAUUCUUAUGGUUAGAAUatt

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Target sequence 16: AACCATAAGAATTAACTATT

Blast search (in new window)

Position in gene sequence: 220

GC content: 19%

Sense strand siRNA: CCAUAAGAAUUAACUAUutt

Antisense strand siRNA: AAUAGUUUAAUUCUUAUGGtt

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Target sequence 17: AAGAATTAACTATTAATGGT

Blast search (in new window)

Position in gene sequence: 226

GC content: 19%

Sense strand siRNA: GAAUUAACUAUUAUUGGutt

Antisense strand siRNA: ACCAUUAAUAGUUUAAUUCHt

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Target sequence 18: AATTAACTATTAATGGTGAA

Blast search (in new window)

Position in gene sequence: 229

GC content: 19%

Sense strand siRNA: UUAACUAUUAUUGGUGAatt

Antisense strand siRNA: UUCACCAUUAUAGUUUAAtt

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Target sequence 19: AACTATTAATGGTGAATAGA

Blast search (in new window)

Position in gene sequence: 233

GC content: 23.8%

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Sense strand siRNA: ACUAUUAUUGGUGAAUAGAtt

Antisense strand siRNA: UCUAUUCACCAUUAUAGUtt

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Target sequence 20: AATGGTGAATAGAGTTTTCa

Blast search (in new window)

Position in gene sequence: 241

GC content: 28.6%

Sense strand siRNA: UGGUGAAUAGAGUUUUUCAtt

Antisense strand siRNA: UGAAAAACUCUAUUCACCAtt

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Target sequence 21: AATAGAGTTTTCACCTTAAc

Blast search (in new window)

Position in gene sequence: 248

GC content: 23.8%

Sense strand siRNA: UAGAGUUUUUCACUUUAACtt

Antisense strand siRNA: GUUAAAGUGAAAAACUCUAtt

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Target sequence 23: AATTCGAAAGAAAAGTCAGTC

Blast search (in new window)

Position in gene sequence: 300

GC content: 33.3%

Sense strand siRNA: UUCGAAAGAAAAGUCAGUCtt

Antisense strand siRNA: GACUGACUUUUCUUCGAAtt

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Target sequence 24: AAAGAAAAGTCAGTCATGTGC

Blast search (in new window)

Position in gene sequence: 305

GC content: 38.1%

Sense strand siRNA: AGAAAAGUCAGUCAUGUGCtt

Antisense strand siRNA: GCACAUGACUGACUUUUCUtt

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Target sequence 25: AAAAGTCAGTCATGTGCTTT

Blast search (in new window)

Position in gene sequence: 310

GC content: 33.3%

Sense strand siRNA: AAGUCAGUCAUGUGCUUUUtt

Antisense strand siRNA: AAAAGCACAUAGACUGACUUt

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Target sequence 26: AAGTCAGTCATGTGCTTTTCA

Blast search (in new window)

Position in gene sequence: 312

GC content: 38.1%

Sense strand siRNA: GUCAGUCAUGUGCUUUUCatt

Antisense strand siRNA: UGAAAAGCACAUGACUGACTt

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Target sequence 27: AAAGCTTAAGATAAAGACTAA

Blast search (in new window)

Position in gene sequence: 340

GC content: 23.8%

Sense strand siRNA: AGCUUAAGAUAAAGACUAatt

Antisense strand siRNA: UUAGUCUUUAUCUUAAGCutt

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Target sequence 28: AAGATAAAGACTAAAAGTGTT

Blast search (in new window)

Position in gene sequence: 347

GC content: 23.8%

Sense strand siRNA: GAUAAAGACUAAAAGUGUUt

Antisense strand siRNA: AACACUUUUAGUCUUUAUctt

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Target sequence 29: AAAGACTAAAAGTGTTTGATG

Blast search (in new window)

Position in gene sequence: 352

GC content: 28.6%

Sense strand siRNA: AGACUAAAAGUGUUUGAUGtt

Antisense strand siRNA: CAUCAAACACUUUUAGUCUtt

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Target sequence 30: AAAAGTGTTTGATGCTGGAGG

Blast search (in new window)

Position in gene sequence: 359

GC content: 42.9%

Sense strand siRNA: AAGUGUUUGAUGCUGGAGGtt

Antisense strand siRNA: CCUCCAGCAUCAACACUutt

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Target sequence 31: AAGTGTTTGATGCTGGAGGTG

Blast search (in new window)

Position in gene sequence: 361

GC content: 47.6%

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Sense strand siRNA: GUGUUUGAUGCUGGAGGUGtt

Antisense strand siRNA: CACCUCCAGCAUCAAACACTt

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Target sequence 32: AAGACATGTGATAATCACTGT

[Blast search](#) (in new window)

Position in gene sequence: 408

GC content: 33.3%

Sense strand siRNA: GACAUGUGAUAAUCACUGUtt

Antisense strand siRNA: ACAGUGAUUAUCACAUGUctt

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Target sequence 33: AATCACTGTAGTAGCTGG

[Blast search](#) (in new window)

Position in gene sequence: 420

GC content: 42.9%

Sense strand siRNA: UCACUGUAGUAGUAGCUGGtt

Antisense strand siRNA: CCAGCUACUACUACAGUGAtt

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Target sequence 34: AAAGAGAAATCTGTGACTCCA

[Blast search](#) (in new window)

Position in gene sequence: 441

GC content: 38.1%

Sense strand siRNA: AGAGAAAUCUGUGACUCCAtt

Antisense strand siRNA: UGGAGUCACAGAUUUCUCUtt

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Target sequence 35: AAATCTGTGACTCCAATTAGC

[Blast search](#) (in new window)

Position in gene sequence: 447

GC content: 38.1%

Sense strand siRNA: AUCUGUGACUCCAAUUGGctt

Antisense strand siRNA: GCUAAUUGGAGUCACAGAUtt

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Target sequence 36: AATTAGCCAGTTCCTGCAGAC

[Blast search](#) (in new window)

Position in gene sequence: 461

GC content: 47.6%

Sense strand siRNA: UUAGCCAGUCCUGCAGActt

Antisense strand siRNA: GUCUGCAGGAACUGGCUAAtt

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Target sequence 37: AAGAATGCTCCTGGCTGTTTT

Blast search (in new window)

Position in gene sequence: 499

GC content: 42.9%

Sense strand siRNA: GAAUGCUCCUGGCUGUUUUUtt

Antisense strand siRNA: AAAACAGCCAGGAGCAUUCtt

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Target sequence 38: AATGCTCCTGGCTGTTTTGTA

Blast search (in new window)

Position in gene sequence: 502

GC content: 42.9%

Sense strand siRNA: UGCUCCUGGCUGUUUUUGUatt

Antisense strand siRNA: UACAAAACAGCCAGGAGCatt

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Target sequence 39: AAGAACCTGATGGAGAAGGAA

Blast search (in new window)

Position in gene sequence: 584

GC content: 42.9%

Sense strand siRNA: GAACCUGAUGGAGAAGGAatt

Antisense strand siRNA: UUCCUUCUCCAUCAGGUUCtt

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Target sequence 40: AACCTGATGGAGAAGGAATGC

Blast search (in new window)

Position in gene sequence: 587

GC content: 47.6%

Sense strand siRNA: CCUGAUGGAGAAGGAAUGCtt

Antisense strand siRNA: GCAUCCUUCUCCAUCAGGtt

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Target sequence 43: AATATCCTTCTGTCCAATGCA

Blast search (in new window)

Position in gene sequence: 671

GC content: 38.1%

Sense strand siRNA: UAUCCUUCUGUCCAAUGCatt

Antisense strand siRNA: UGCAUUGGACAGAAGGAUatt

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Target sequence 47: AACTTCATGGGATTCAACTGT

Blast search (in new window)

Position in gene sequence: 782

GC content: 38.1%

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Sense strand siRNA: CUUCAUGGGAUUCAACUGUtt

Antisense strand siRNA: ACAGUUGAAUCCCAUGAAGtt

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Target sequence 48: AACTGTGGAACTGCAAGTTT

[Blast search](#) (in new window)

Position in gene sequence: 797

GC content: 38.1%

Sense strand siRNA: CUGUGGAAACUGCAAGUUUtt

Antisense strand siRNA: AAACUUGCAGUUUCCACAGtt

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Target sequence 49: AAACGCAAGTTTGCTTTTG

[Blast search](#) (in new window)

Position in gene sequence: 805

GC content: 38.1%

Sense strand siRNA: ACUGCAAGUUUGGCUUUUGtt

Antisense strand siRNA: CAAAAGCCAAACUUGCAGUtt

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Target sequence 50: AAGTTTGGCTTTTGGGGACCA

[Blast search](#) (in new window)

Position in gene sequence: 812

GC content: 47.6%

Sense strand siRNA: GUUUGGCUUUUGGGGACCAtt

Antisense strand siRNA: UGGUCCCCAAAAGCCAAACtt

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Target sequence 51: AAACGACAGAGAGACGACT

[Blast search](#) (in new window)

Position in gene sequence: 832

GC content: 47.6%

Sense strand siRNA: ACUGCACAGAGAGACGACUtt

Antisense strand siRNA: AGUCGUCUCUCUGUGCAGUtt

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Target sequence 52: AAGAAACATCTTCGATTGAG

[Blast search](#) (in new window)

Position in gene sequence: 862

GC content: 33.3%

Sense strand siRNA: GAAACAUCUUCGAUUUGAGtt

Antisense strand siRNA: CUCAAAUCGAAGAUGUUUctt

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Target sequence 53: AAACATCTTCGATTGAGTGC

Blast search (in new window)

Position in gene sequence: 865

GC content: 38.1%

Sense strand siRNA: ACAUCUUCGAUUUGAGUGCtt

Antisense strand siRNA: GCACUCAAAUCGAAGAUGtt

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Target sequence 54: AAGGACAAATTTTTCCTAC

Blast search (in new window)

Position in gene sequence: 893

GC content: 33.3%

Sense strand siRNA: GGACAAAUUUUUUGCCUACtt

Antisense strand siRNA: GUAGGCCAAAAAUUUGUCCTt

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Target sequence 55: AAATTTTTGCCTACCTCACT

Blast search (in new window)

Position in gene sequence: 899

GC content: 33.3%

Sense strand siRNA: AUUUUUUGCCUACCUCACtt

Antisense strand siRNA: AGUGAGGUAGGCCAAAAAUtt

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Target sequence 56: AAAGCATACCATCAGCTCAGA

Blast search (in new window)

Position in gene sequence: 925

GC content: 42.9%

Sense strand siRNA: AGCAUACCAUCAGCUCAGAtt

Antisense strand siRNA: UCUGAGCUGAUGGUAUGCUtt

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Target sequence 57: AAATGAAAAATGGATCAACAC

Blast search (in new window)

Position in gene sequence: 975

GC content: 28.6%

Sense strand siRNA: AUGAAAAAUGGAUCAACActt

Antisense strand siRNA: GUGUUGAUCCAUUUUUCAUtt

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Target sequence 58: AAAAATGGATCAACACCCATG

Blast search (in new window)

Position in gene sequence: 980

GC content: 38.1%

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Sense strand siRNA: AAAUGGAUCAACACCCAUGtt

Antisense strand siRNA: CAUGGGUGUUGAUCCAUUtt

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Target sequence 59: AAATGGATCAACACCCATGTT

Blast search (in new window)

Position in gene sequence: 982

GC content: 38.1%

Sense strand siRNA: AUGGAUCAACACCCAUGUtt

Antisense strand siRNA: AACAUUGGGUGUUGAUCCAUtt

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Target sequence 60: AACACCCATGTTTAACGACAT

Blast search (in new window)

Position in gene sequence: 991

GC content: 38.1%

Sense strand siRNA: CACCCAUGUUUAACGACAUtt

Antisense strand siRNA: AUGUCGUUAAACAUGGGUGtt

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Target sequence 61: AACGACATCAATATTTATGAC

Blast search (in new window)

Position in gene sequence: 1004

GC content: 28.6%

Sense strand siRNA: CGACAUCAUAUUUAUGACTt

Antisense strand siRNA: GUCAUAAAUAUUGAUGUCGtt

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Target sequence 62: AATATTTATGACCTCTTTGTC

Blast search (in new window)

Position in gene sequence: 1013

GC content: 28.6%

Sense strand siRNA: UAUUUUAUGACCUUUUGUCtt

Antisense strand siRNA: GACAAAGAGGUCAUAAAUatt

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Target sequence 64: AAATCTGGAGAGACATTGATT

Blast search (in new window)

Position in gene sequence: 1080

GC content: 33.3%

Sense strand siRNA: AUCUGGAGAGACAUUGAUtt

Antisense strand siRNA: AAUCAAUUGUCUCCAGAUtt

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Target sequence 65: AAGCACCAGCTTTCTGCCTT

Blast search (in new window)

Position in gene sequence: 1110

GC content: 47.6%

Sense strand siRNA: GCACCAGCUUUUCUGCCUtt

Antisense strand siRNA: AAGGCAGAAAAGCUGGUGctt

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Target sequence 66: AACAGAAATCCAGAAGCTGA

Blast search (in new window)

Position in gene sequence: 1158

GC content: 38.1%

Sense strand siRNA: CAAGAAAUCCAGAAGCUGatt

Antisense strand siRNA: UCAGCUUCUGGAUUUCUUGtt

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Target sequence 67: AAGAAATCCAGAAGCTGACAG

Blast search (in new window)

Position in gene sequence: 1161

GC content: 42.9%

Sense strand siRNA: GAAAUCCAGAAGCUGACAGtt

Antisense strand siRNA: CUGUCAGCUUCUGGAUUUctt

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Target sequence 68: AAATCCAGAAGCTGACAGGAG

Blast search (in new window)

Position in gene sequence: 1164

GC content: 47.6%

Sense strand siRNA: AUCCAGAAGCUGACAGGAGtt

Antisense strand siRNA: CUCCUGUCAGCUUCUGGAUtt

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View corresponding insert sequences for an siRNA expression vector (e.g., p*Silencer*[™])

Target sequence 69: AAGCTGACAGGAGATGAAAAC

Blast search (in new window)

Position in gene sequence: 1172

GC content: 42.9%

Sense strand siRNA: GCUGACAGGAGAUGAAAACtt

Antisense strand siRNA: GUUUUCAUCUCCUGUCAGctt

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View corresponding insert sequences for an siRNA expression vector (e.g., p*Silencer*[™])

Target sequence 70: AAAACTTCACTATTCCATATT

Blast search (in new window)

Position in gene sequence: 1188

GC content: 23.8%

USSN 10/738,413

EXHIBIT 4

Sense strand siRNA: AACUUCACUAUUECCAUAUUt

Antisense strand siRNA: AAUAUGGAAUAGUGAAGUUt

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Target sequence 71: AACITCACTATTCCATATGG

[Blast search](#) (in new window)

Position in gene sequence: 1190

GC content: 33.3%

Sense strand siRNA: CUUCACUAUUECCAUAUUGGt

Antisense strand siRNA: CCAUAUGGAALAGUGAAGt

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Target sequence 72: AAAAGTGTGACATTTCACAG

[Blast search](#) (in new window)

Position in gene sequence: 1227

GC content: 38.1%

Sense strand siRNA: AAGUGUGACAUUUGCACAGt

Antisense strand siRNA: CUGUGCAAUUGUCACAUt

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Target sequence 73: AAGTGTGACATTTCACAGAT

[Blast search](#) (in new window)

Position in gene sequence: 1229

GC content: 38.1%

Sense strand siRNA: GUGUGACAUUUGCACAGAUt

Antisense strand siRNA: AUCUGUGCAAUUGUCACACt

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Target sequence 74: AAATCCTAACTTACTCAGCCC

[Blast search](#) (in new window)

Position in gene sequence: 1276

GC content: 42.9%

Sense strand siRNA: AUCCUAACUACUCAGCCct

Antisense strand siRNA: GGGCUGAGUAAGUAGGAU

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Target sequence 75: AACTTACTCAGCCCAGCATCA

[Blast search](#) (in new window)

Position in gene sequence: 1283

GC content: 47.6%

Sense strand siRNA: CUUACUCAGCCCAGCAUc

Antisense strand siRNA: UGAUGCUGGGCUGAGUAAGt

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USSN 10/738,413

EXHIBIT 4

Target sequence 76: AACAGCCATCAGTCTTTATGC

[Blast search](#) (in new window)

Position in gene sequence: 1349

GC content: 42.9%

Sense strand siRNA: CAGCCAUCAGUCUUUAUGCtt

Antisense strand siRNA: GCAUAAAGACUGAUGGCUGtt

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Target sequence 79: AATCCTGGAAACCATGACAAA

[Blast search](#) (in new window)

Position in gene sequence: 1400

GC content: 38.1%

Sense strand siRNA: UCCUGGAAACCAUGACAAAtt

Antisense strand siRNA: UUUGUCAUGGUUCCAGGAtt

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Target sequence 80: AAACCATGACAAATCCAGAAC

[Blast search](#) (in new window)

Position in gene sequence: 1408

GC content: 38.1%

Sense strand siRNA: ACCAUGACAAAUCCAGAACTt

Antisense strand siRNA: GUUCUGGAUUUGUCAUGGUtt

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Target sequence 84: AATTTTGCCTGAGTTTGACCC

[Blast search](#) (in new window)

Position in gene sequence: 1458

GC content: 42.9%

Sense strand siRNA: UUUUGCCUGAGUUGACCCtt

Antisense strand siRNA: GGGUCAAACUCAGGCAAAAtt

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Target sequence 85: AATATGAATCTGGTTCCATGG

[Blast search](#) (in new window)

Position in gene sequence: 1479

GC content: 38.1%

Sense strand siRNA: UAUGAAUCUGGUUCCAUGGtt

Antisense strand siRNA: CCAUGGAACCAUUAUUAAtt

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Target sequence 86: AATCTGGTTCCATGGATAAAG

[Blast search](#) (in new window)

Position in gene sequence: 1485

GC content: 38.1%

USSN 10/738,413

EXHIBIT 4

Sense strand siRNA: UCUGGUUCCAUGGAUAAAGt

Antisense strand siRNA: CUUUAUCCAUGGAACCAGAt

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Target sequence 87: AAAGCTGCCAATTTAGCTTT

[Blast search](#) (in new window)

Position in gene sequence: 1502

GC content: 38.1%

Sense strand siRNA: AGCUGCCAAUUUCAGCUUtt

Antisense strand siRNA: AAAGCUGAAAUUGGCAGCUtt

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Target sequence 88: AATTTAGCTTTAGAAATACA

[Blast search](#) (in new window)

Position in gene sequence: 1511

GC content: 23.8%

Sense strand siRNA: UUUUCAGCUUUAGAAAUACAt

Antisense strand siRNA: UGUUUUUCUAAAGCUGAAAt

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Target sequence 89: AAATACACTGGAAGGATTTGC

[Blast search](#) (in new window)

Position in gene sequence: 1525

GC content: 38.1%

Sense strand siRNA: AUACACUGGAAGGAUUUGCtt

Antisense strand siRNA: GCAAAUCCUUCAGUGUAUtt

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Target sequence 90: AAGGATTTGCTAGTCCACTTA

[Blast search](#) (in new window)

Position in gene sequence: 1536

GC content: 38.1%

Sense strand siRNA: GGAUUUGCUAGUCCACUAt

Antisense strand siRNA: UAAGUGGACUAGCAAAUCCtt

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Target sequence 91: AAAGCAGCATGCACAATGCCT

[Blast search](#) (in new window)

Position in gene sequence: 1578

GC content: 47.6%

Sense strand siRNA: AGCAGCAUGCACAAUGCCUtt

Antisense strand siRNA: AGGCAUUGUGCAUGCUGCUtt

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USSN 10/738,413

EXHIBIT 4

Target sequence 92: AATGCCTTGCACATCTATATG

Blast search (in new window)

Position in gene sequence: 1592

GC content: 38.1%

Sense strand siRNA: UGCCUUGCACAUUAUAUGtt

Antisense strand siRNA: CAUAUAGAUGUGCAAGGCatt

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Target sequence 93: AATGGAACAATGTCCCAGGTA

Blast search (in new window)

Position in gene sequence: 1613

GC content: 42.9%

Sense strand siRNA: UGGAACAAUGUCCCAGGUatt

Antisense strand siRNA: UACCUGGGACAUUGUCCatt

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Target sequence 96: AACGATCCTATCTTCCTTCTT

Blast search (in new window)

Position in gene sequence: 1646

GC content: 38.1%

Sense strand siRNA: CGAUCCUAUCUCCUUCUutt

Antisense strand siRNA: AAGAAGGAAGAUAGGAUCGtt

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Target sequence 98: AAGAAGTTTATCCAGAAGCCA

Blast search (in new window)

Position in gene sequence: 1725

GC content: 38.1%

Sense strand siRNA: GAAGUUUAUCCAGAAGCCatt

Antisense strand siRNA: UGGCUUCUGGAUAAACUUCtt

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Target sequence 99: AAGTTTATCCAGAAGCCAATG

Blast search (in new window)

Position in gene sequence: 1728

GC content: 38.1%

Sense strand siRNA: GUUUAUCCAGAAGCCAAUGtt

Antisense strand siRNA: CAUUGGCUUCUGGAUAAACtt

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Target sequence 101: AATGCACCCATTGGACATAAC

Blast search (in new window)

Position in gene sequence: 1745

GC content: 42.9%

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EXHIBIT 4

Sense strand siRNA: UGCACCCAUUGGACAUAACTt

Antisense strand siRNA: GUUAUGUCCAAUGGGUGCAtt

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Target sequence 102: AACCGGGAATCCTACATGGTT

[Blast search](#) (in new window)

Position in gene sequence: 1763

GC content: 47.6%

Sense strand siRNA: CCGGGAUCCUACAUGGUUtt

Antisense strand siRNA: AACCAUGUAGGAUCCCCGgt

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Target sequence 103: AATCCTACATGGTTCCTTTTA

[Blast search](#) (in new window)

Position in gene sequence: 1770

GC content: 33.3%

Sense strand siRNA: UCCUACAUGGUUCCUUUUAtt

Antisense strand siRNA: UAAAAGGAACCAUGUAGGAtt

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Target sequence 104: AAATGGTGATTTCCTTATTTTC

[Blast search](#) (in new window)

Position in gene sequence: 1804

GC content: 23.8%

Sense strand siRNA: AUGGUGAUUUUCUUUUAUUUctt

Antisense strand siRNA: GAAAUAAAGAAUACCAUtt

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Target sequence 105: AAAGATCTGGGCTATGACTAT

[Blast search](#) (in new window)

Position in gene sequence: 1829

GC content: 38.1%

Sense strand siRNA: AGAUCUGGGCUAUGACUAUtt

Antisense strand siRNA: AUAGUCAUAGCCCAGAUcUtt

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Target sequence 106: AAGATTCAGACCCAGACTCTT

[Blast search](#) (in new window)

Position in gene sequence: 1860

GC content: 42.9%

Sense strand siRNA: GAUUCAGACCCAGACUCUtt

Antisense strand siRNA: AAGAGUCUGGGUCUGAAUcTt

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USSN 10/738,413

EXHIBIT 4

Target sequence 107: AAGACTACATTAAGTCCTATT

Blast search (in new window)

Position in gene sequence: 1884

GC content: 28.6%

Sense strand siRNA: GACUACAUUAAGUCCUAAUUh

Antisense strand siRNA: AAUAGGACUUA AUGUAGUCtt

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Target sequence 108: AAGTCCTATTGGAACAAGCG

Blast search (in new window)

Position in gene sequence: 1895

GC content: 42.9%

Sense strand siRNA: GUCCUAAUUGGAACAAGCGtt

Antisense strand siRNA: CGCUUGUUCCAAUAGGACTt

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Target sequence 111: AAGAGAAAGCAGCTTCCTGAA

Blast search (in new window)

Position in gene sequence: 2009

GC content: 42.9%

Sense strand siRNA: GAGAAAGCAGCUUCCUGAAtt

Antisense strand siRNA: UUCAGGAAGCUGCUUUCUCtt

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Target sequence 112: AAAGCAGCTTCCTGAAGAAAA

Blast search (in new window)

Position in gene sequence: 2014

GC content: 38.1%

Sense strand siRNA: AGCAGCUUCCUGAAGAAAAtt

Antisense strand siRNA: UUUUCUUCAGGAAGCUGCutt

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Target sequence 113: AAGAAAAGCAGCCACTCCTCA

Blast search (in new window)

Position in gene sequence: 2028

GC content: 47.6%

Sense strand siRNA: GAAAAGCAGCCACUCCUCAtt

Antisense strand siRNA: UGAGGAGUGGCUUCUUUUCtt

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Target sequence 116: AAAGAGGATTACCACAGCTTG

Blast search (in new window)

Position in gene sequence: 2054

GC content: 42.9%

USSN 10/738,413

EXHIBIT 4

Sense strand siRNA: AGAGGAUUUACCACAGCUUGtt

Antisense strand siRNA: CAAGCUGUGGUAUCCUCUtt

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Target sequence 117: AAAAGGCTTAGGCAATAGAGT

[Blast search](#) (in new window)

Position in gene sequence: 2091

GC content: 38.1%

Sense strand siRNA: AAGGCUUAGGCAAUAGAGUtt

Antisense strand siRNA: ACUCUAUUGCCUAAGCCUtt

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Target sequence 118: AAGGCTTAGGCAATAGAGTAG

[Blast search](#) (in new window)

Position in gene sequence: 2093

GC content: 42.9%

Sense strand siRNA: GGCUUAGGCAAUAGAGUAGtt

Antisense strand siRNA: CUACUCUAUUGCCUAAGCCtt

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Target sequence 119: AATAGAGTAGGGCCAAAAGC

[Blast search](#) (in new window)

Position in gene sequence: 2104

GC content: 42.9%

Sense strand siRNA: UAGAGUAGGGCCAAAAGCtt

Antisense strand siRNA: GCUUUUUGGCCCUACUCUAtt

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Target sequence 120: AAAAAGCCTGACCTCACTCTA

[Blast search](#) (in new window)

Position in gene sequence: 2118

GC content: 42.9%

Sense strand siRNA: AAAGCCUGACCUCACUCUAtt

Antisense strand siRNA: UAGAGUGAGGUCAGGCUUUtt

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Target sequence 121: AAAGCCTGACCTCACTCTAAC

[Blast search](#) (in new window)

Position in gene sequence: 2120

GC content: 47.6%

Sense strand siRNA: AGCCUGACCUCACUCUAActt

Antisense strand siRNA: GUUAGAGUGAGGUCAGGCUtt

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USSN 10/738,413

EXHIBIT 4

Target sequence 122: AACTCAAAGTAATGTCCAGGT

Blast search (in new window)

Position in gene sequence: 2138

GC content: 38.1%

Sense strand siRNA: CUCAAAGUAAUGUCCAGGutt

Antisense strand siRNA: ACCUGGACAUUACUUUGAGtt

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Target sequence 123: AAAGTAATGTCCAGGTCCCA

Blast search (in new window)

Position in gene sequence: 2143

GC content: 42.9%

Sense strand siRNA: AGUAAUGUCCAGGUUCCAtt

Antisense strand siRNA: UGGGAACCUGGACAUUACUtt

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Target sequence 124: AATGTCCAGGTCCAGAGAA

Blast search (in new window)

Position in gene sequence: 2148

GC content: 47.6%

Sense strand siRNA: UGUCCAGGUUCCCAGAGAAtt

Antisense strand siRNA: UUCUCUGGGAACCUGGACAtt

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Target sequence 125: AATATCTGCTGGTATTTTCT

Blast search (in new window)

Position in gene sequence: 2167

GC content: 28.6%

Sense strand siRNA: UAUCUGCUGGUUUUUUCUtt

Antisense strand siRNA: AGAAAAAUACCAGCAGAUAtt

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Target sequence 126: AAAGACCATTGCAAAATTGT

Blast search (in new window)

Position in gene sequence: 2190

GC content: 28.6%

Sense strand siRNA: AGACCAUUUGCAAAAUUGutt

Antisense strand siRNA: ACAAUUUUGCAAUGGUCUtt

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Target sequence 127: AAAATTGTAACCTAATACAAA

Blast search (in new window)

Position in gene sequence: 2203

GC content: 19%

USSN 10/738,413

EXHIBIT 4

Sense strand siRNA: AAUUGUAACCUAAUACAAAtt

Antisense strand siRNA: UUUGUAUUAGGUUACAAUtt

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Target sequence 128: AATTGTAACCTAATACAAAGT

[Blast search](#) (in new window)

Position in gene sequence: 2205

GC content: 23.8%

Sense strand siRNA: UUGUAACCUAAUACAAAGUtt

Antisense strand siRNA: ACUUUGUAUUAGGUUACAAtt

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Target sequence 129: AACCTAATACAAAGTGTAGCC

[Blast search](#) (in new window)

Position in gene sequence: 2211

GC content: 38.1%

Sense strand siRNA: CCUAAUACAAAGUGUAGCctt

Antisense strand siRNA: GGCUACACUUUGUAUUAGGtt

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Target sequence 130: AATACAAAGTGTAGCCTTCTT

[Blast search](#) (in new window)

Position in gene sequence: 2216

GC content: 33.3%

Sense strand siRNA: UACAAAGUGUAGCCUUCUtt

Antisense strand siRNA: AAGAAGGCUACACUUUGUAtt

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Target sequence 131: AAAGTGTAGCCTTCTTCCAAC

[Blast search](#) (in new window)

Position in gene sequence: 2221

GC content: 42.9%

Sense strand siRNA: AGUGUAGCCUUCUCCAACtt

Antisense strand siRNA: GUUGGAAGAAGGCUACACUtt

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Target sequence 132: AACTCAGGTAGAACACACCTG

[Blast search](#) (in new window)

Position in gene sequence: 2239

GC content: 47.6%

Sense strand siRNA: CUCAGGUAGAACACACCUGtt

Antisense strand siRNA: CAGGUGUGUUCUACCUGAGtt

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Target sequence 133: AACACACCTGTCTTTGTCTTG

Blast search (in new window)

Position in gene sequence: 2250

GC content: 42.9%

Sense strand siRNA: CACACCUGUCUUUGUCUUGtt

Antisense strand siRNA: CAAGACAAAGACAGGUGUGtt

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Target sequence 134: AACATTTTCCCCTAAGCCCAT

Blast search (in new window)

Position in gene sequence: 2292

GC content: 42.9%

Sense strand siRNA: CAUUUUCUUUAGCCCAUtt

Antisense strand siRNA: AUGGGCUUAGGGGAAAUGtt

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Target sequence 135: AAGCCCATATGTCTAAGGAAA

Blast search (in new window)

Position in gene sequence: 2305

GC content: 38.1%

Sense strand siRNA: GCCCAUAUGUCUAAGGAAAtt

Antisense strand siRNA: UUUCCUAGACAUUUGGGCtt

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Target sequence 136: AAGGAAAGGATGCTATTTGGT

Blast search (in new window)

Position in gene sequence: 2319

GC content: 38.1%

Sense strand siRNA: GGAAAGGAUGCUUUUGGtt

Antisense strand siRNA: ACCAAAUAGCAUCCUUUCtt

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Target sequence 137: AAAGGATGCTATTTGGTAATG

Blast search (in new window)

Position in gene sequence: 2323

GC content: 33.3%

Sense strand siRNA: AGGAUGCUUUUGGUAAUGtt

Antisense strand siRNA: CAUUACCAAUAGCAUCCtt

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Target sequence 138: AATGAGGAACTGTATTGTGA

Blast search (in new window)

Position in gene sequence: 2340

GC content: 28.6%

USSN 10/738,413

EXHIBIT 4

Sense strand siRNA: UGAGGAACUGUUAUUUGUAtt

Antisense strand siRNA: UACAAAUACAGUCCUCAtt

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Target sequence 139: AACTGTTATTTGTATGTGAAT

Blast search (in new window)

Position in gene sequence: 2347

GC content: 23.8%

Sense strand siRNA: CUGUUAUUUGUAUGUGAAUtt

Antisense strand siRNA: AUUCACAUACAAAUACAGtt

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